REMARKS

Claims 1-19 are pending. Claims 1-19 are rejected.

Claims 1, 5-7, 9-12, and 16-19 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al (6340411) in view of Cook et al (5562740).

Claims 2-4 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al (6340411) in view of Cook et al (5562740) and further in view of Hatsuda et al (6562879).

Claims 7-9 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al (6340411) in view of Cook et al (5562740) and further in view of Jewell et al (US Patent Publication 2003/0205342).

Claims 1, 5-8 and 10-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over (renumbered) claims 1-9 and 11-12 of copending Application No. 10/748977.

Claims 1, 5-8, 10-12 and 16-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 and 12-13 of copending Application No. 10/815206.

Claims 1-8, 10, and 12-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/748969.

The Rejection of Claims 1, 5-7, 9-12 and 16-19 Under 35 U.S.C. § 103 (a)

Claims 1,5-7, 9-12, and 16-19 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al. (6340411) in view of Cook et al (5562740). Withdrawal of this rejection is respectfully requested.

As a whole, the Hansen reference teaches a method of densifying fibers using polymeric and non-polymeric densifying agents to bind particles to fibers. The densifying agents in Hansen are binders. Hansen states that fibers with high bulk from intrafiber covalent crosslinks are prepared by individualizing the fibers and curing them at elevated temperatures (above 150°C). The reference states that, for densification, initial

application of the binder on such high bulk fibers preferably occurs *after* the curing step, particularly if the binder is functioning as a crosslinking agent. Hansen states that the specific binders that can crosslink are polyols, polyaldehydes, polycarboxylic acids and polyamines, column 34, line 4-line 7, but if these binders are present the binder will be consumed during curing to form covalent bonds. When this occurs the binder is no longer available for hydrogen bonding or coordinate covalent bonding and binding to particles is ineffective. Applicants submit that Hansen teaches away from crosslinking with those binders he claims crosslink namely, polyols, polyaldehydes, polycarboxylic acids and polyamines. Hansen thus fails to recognize the unexpected whiteness benefit of crosslinking cellulose with a polycarboxylic acid in the presence of a polyol as shown in the instant invention. In Table 1 of the application, when cellulose is crosslinked with citric acid in the presence of, for example, sorbitol, the Whiteness Index $WI_{(CDM-L)}$, increases from 73.77 for the control to 81.1 with a 2 weight percent sorbitol on fiber using CF416 pulp and from 73.09 to 82.68 percent with a 6 weight percent sorbitol on fiber using NF405 pulp. Contrary to the Examiner's contention, Applicants submit that the reference does not teach the *combination of a polyol and a polycarboxylic acid* during the crosslinking reaction, as shown in the instant invention rather, the reference teaches that when these binders are present *alone* during the curing step, the binder will be consumed to form covalently crosslinked bonds. Thus Hansen also teaches away from the combination of the polyol and polycarboxylic acid during the crosslinking reaction. Furthermore, Hansen states a particular disadvantage of forming covalent ester intrafiber crosslinks is that the resulting fiber product resists densification, column 3, line 13-15 and covalent bonds within the fibers produce a pulp sheet that is more difficult to compress to conventional pulp sheet densities than an untreated sheet, column 3, line 5-7. Hence the reference teaches away from the claimed invention when the binders are used alone in the curing stage and is also is silent as to the use of a combination of the polyol and the polycarboxylic acid during the crosslinking reaction with cellulose. The Examiner also states that Hansen et al. does not teach brightness greater than 69 or greater than 79 ISO.

The Examiner states that Cook et al. disclose individualized polycarboxylic acid crosslinked fibers with a brightness of 86 as having a better aesthetic appeal to the customer.

Cook teaches odor removal and brightness improvement by contacting the citric acid crosslinked fibers with an alkaline solution such as sodium hydroxide and an oxidizing solution such as hydrogen peroxide to remove odor and improve brightness. The reference does not teach or suggest crosslinking of cellulose with a crosslinking agent in the presence of a polyol during the crosslinking reaction to improve brightness or Whiteness Index, rather, the reference teaches a post treatment of the crosslinked fibers.

Hansen teaches away from the invention, does not teach the use of a crosslinking agent and a polyol during the crosslinking reaction and fails to recognize the unexpected benefit of whitenss when a crosslinking agent and a polyol are used in the crosslinking reaction. Cook also does not teach the use of polyols during the crosslinking reaction. Since neither reference fails to teach, suggest or provide any motivation to combine the references to make the crosslinked fibers characterized by a Whiteness Index greater than about 69, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Rejection of Claims 2-4 Under 35 U.S.C. § 103 (a)

Claims 2-4 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al (6340411) in view of Cook et al (5562740) and further in view of Hatsuda et al (6562879).

Claims 2-4 depend from Claim 1. Claim 1 has been addressed above.

The Hansen and Cook references have been addressed above.

The objective of the Hatsuda et al reference is to provide a water absorbent resin powder with high liquid permeability under load, high water absorbency under load and no load, and an absorbent structure and article for which this absorbent resin powder is used. The resin powder is obtained by an aqueous solution polymerization step and further grinding the resultant crosslinked polymer particles until the bulk density increases to not lower than 0.72 (g/ml).

Various crosslinked polymers, monomers, internal and surface crosslinking agents are used, column, 4, lines 56-66, column 5, line 30-54, column 6, line 61- column 7, line 7, and column 10, line 58- column to column 11, line 33., respectively.

The arbitrarily pulverized water-absorbent resin powder has an L value of preferably not lower than 85 (namely L value = about 88), an a value preferably in the range of +/- 2 (namely), a value = about-0.6) and a b value preferably in the range of 0~9 (namely b value = about 6) column 16, line 7-12. Using the formula for Whiteness Index as shown on page 6 of the application, $WI_{(CDM-L)}$= L-3b, the calculated Whiteness Index for the resin where L is 88 and b is 6, the Whiteness Index therefore is 88-18 or 70 essentially the same as claimed 69 in the instant invention, Claim 1, yet this value was achieved with a cellulose based product which Applicants submit is from non- analogous art. The Hatsuda et al. reference relates to a process for making water absorbent resin powders, the instant invention relates to crosslinking fibers with a polyol and a polycarboxylic acid to achieve fiber whiteness. That is, the reference is outside the field of the inventor's endeavor. The Examiner states that since Hatsuada discloses that the crosslinking reaction system can contain cellulosic fibers, polycarboxylic acids and polyhydric alcohols, it reinforces the case for analogous art. Applicants respectfully disagree. The fact that these materials can be added during polymerization has no more relevance to analogous art than addition of other materials such as carbonates, carbon dioxide azo componds inert organic solvents, starch, surfactants chelating agents and chain transfer agents. Like resins, these additives are from non-analogous art and therefore the skilled artisan would not be motivated to search in resins or these other areas for whiteness improvement in fibers. Stated another way, there is no reason a skilled artisan would look in the field of resins any more than he would look in the field of, for example, carbonates, dyes, solvents, chelating agents etc. to achieve whiteness in crosslinked fibers. Applicants submit the Examiner is merely using hindsight to support the combination with Hansen and Cook to arrive at the claimed invention. In *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443 (Fed Cir. 1992) the Federal stated as follows:

> It has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to look to fasteners for garments. The combination of elements from non-

analogous sources, in a manner that recontructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case for obviousness, There must be some reason, suggestion or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the invention itself...

Applicants submit there is no reason, suggestion or motivation to combine Hansen et al. with Cook and Hatsuada to arrive at the claimed invention and the Examiner has merely used hindsight to combine the references to arrive at the claimed invention. Withdrawal of the rejection is respectfully requested.

The Rejection Of Claims 7-9 Under 35 U.S.C. § 103 (a)

Claims 7-9 are rejected under 35 U.S.C.§ 103(a) as being unpatentable over Hansen et al (6340411) in view of Cook et al (5562740) and further in view of Jewell et al (US Patent Publication 2003/0205342).

Claims 7-9 are dependent from Claim 1. Claim 1 has been addressed above.

The fact that Jewell discloses citric acid, tartaric and/ or malic acid as crosslinking agents for cellulose bears no further weight in showing obviousness since Hansen teaches away from the claimed invention and does not show crosslinking cellulose with carboxylic acids in the presence of polyols. Hansen also does not recognize the whiteness benefit realized by crosslinking with a polycarboxylic acid and a polyol to achieve a Whiteness Index of greater than about 69. Cook does not suggest the use of polyols in the presence of C_4-C_{12} crosslinking agents and uses a post treatment to achieve brightness. Jewell cites citric acid, tartaric acid, malic acid, and others, as crosslinking agents but does not teach the use of polyols to achieve the Whiteness Index of the crosslinked fibers of the invention. Applicants submit there is no suggestion, teaching or motivation to combine the references to arrive at the claimed invention. Withdrawal of the rejection is therefore respectively requested.

The Provisional Obviousness-Type Double Patenting Rejections

Claims 1, 5-8 and 10-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over (renumbered) claims 1-9 and 11-12 of copending Application No. 10/748977.

Claims 1, 5-8, 10-12 and 16-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 and 12-13 of copending Application No. 10/815206.

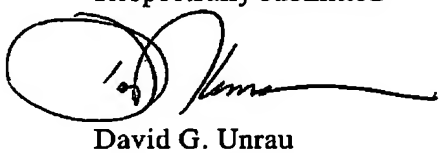
Claims 1-8, 10, and 12-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/748969.

Applicants note the provisional double patenting rejections and will file a terminal disclaimer on the Examiner's indication of allowable subject matter in this and one or more of the copending applications.

CONCLUSION

Based on the foregoing, Applicants submit that the application is in condition for allowance and request that it proceed accordingly. If the Examiner has any further questions or comments the Examiner is invited to contact the Applicants' agent.

Respectfully submitted



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